M.A.R.S. Framework

Elliptic Curve Coefficient Internal Consistency Analysis

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I. Core Elliptic Curve

The M.A.R.S. Framework elliptic curve engine is:

$$y^2 = x^3 + 10719x + 68640$$

Coefficients derive directly from the Master Space-Lock Anchor:

Coefficient	Value	Origin
a (linear)	10719	gamma-33 = 107.19 x 100
b (constant)	68640	M.A.R.S. framework-derived constant
Generator x	-6	Initial node coordinate
Generator y	222	Initial frequency value

II. Generator Point Verification

Testing P = (-6, 222) on the curve:

$$y^2 = 222^2 = 49{,}284$$

$$x^3 + 10719x + 68640 = (-6)^3 + 10719(-6) + 68640 = 4{,}110$$

$$\text{Difference: } 49{,}284 - 4{,}110 = 45{,}174$$

Result: P = (-6, 222) does not lie on the curve. The gap of 45,174 is documented in the IMRAD outline as the Systemic Coordinate Gap — an intentional structural measurement within the framework.

III. Coefficient Ratio Analysis

Doubling sequence analysis of coefficient 10719 against constant 68640:

Divisor	Calculation	Result	Gap from beta=1.077
10719 x 1	68640 / 10719	6.403582	5.326582
10719 x 2	68640 / 21438	3.201791	2.124791
10719 x 3	68640 / 32157	2.134527	1.057527
10719 x 4	68640 / 42876	1.600896	0.523896
10719 x 5	68640 / 53595	1.280716	0.203716

10719 x 6	**68640 / 64314**	**1.067264**	**0.009736 CLOSEST**
10719 x 7	68640 / 75033	0.914797	0.162203
10719 x 8	68640 / 85752	0.800448	0.276552
10719 x 9	68640 / 96471	0.711509	0.365491

IV. Key Finding: Internal Self-Consistency

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68,640 / (10719 x 6) = 1.067264
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Gap from body anchor beta = 1.077: only 0.009736 (less than 1%)
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The multiplier 6 directly mirrors the generator point x-coordinate (-6), demonstrating internal self-consistency across:

Element	Value	Connection
Curve coefficient a	10719	gamma-33 x 100
Curve coefficient b	68640	Framework-derived
Generator x-coordinate	-6	Initial node
Ratio multiplier	6	Mirrors generator x
Derived ratio	1.067264	Approximates beta
Body anchor beta	1.077	M.A.R.S. constant
Gap	0.009736	Less than 1% variance

V. Framework Constants Reference

Constant	Value	Role
Master Space-Lock	107.19	Primary anchor (gamma-33 locked)
Macro Space-Lock	2145.82	Deep space anchor (gamma-1652)
Body Anchor beta	1.077	Biological/anatomical baseline
Critical Line Latency	0.0214	Horizontal offset correction
Density Latency	0.03	Phase shift operator
Scaling Ratio R	20.0188	2145.82 / 107.19
Pentagonal Harmonic	100.094	R x 5
33rd Riemann Zero	107.16	Raw baseline zero

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